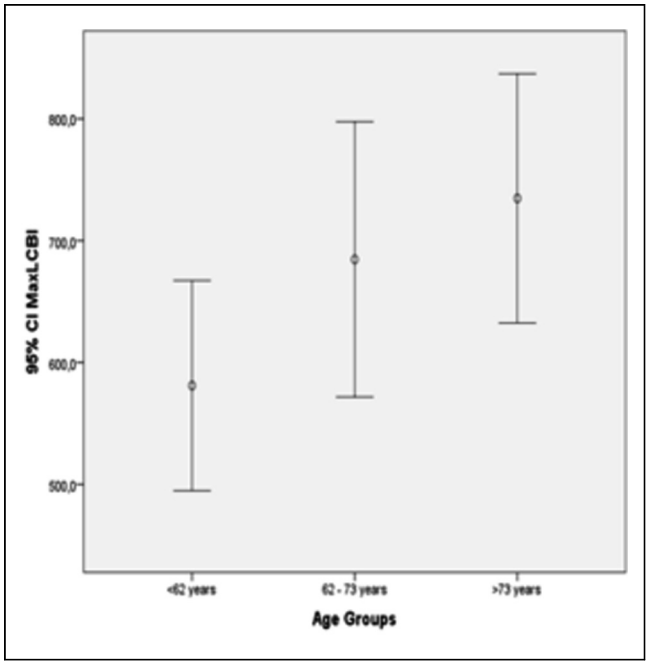
myocardial infarction (STEMI) and to investigate its relation to baseline characteristics.

METHODS 60 STEMI patients who underwent percutaneous coronary interventions and combined NIRS-IVUS at Skane University Hospital, Lund Sweden, were enrolled in the study. Lipid accumulation in the culprit vessels was investigated by NIRS, analyzing the 4-mm length segment with maximum lipid core burden index (maxLCBI4mm) within each culprit lesion and in remaining non-culprit segments. Baseline characteristics were obtained from medical records and the relationship between baseline characteristics and maxLCBI4mm in culprit and non-culprit segments was examined using simple and multiple linear regressions.

RESULTS The STEMI-culprit lesions contained significantly more lipid than the non-culprit segments [median (inter-quartile range) 662 (514-868) vs. 36 (0-200), p<0.001] and 88% of the STEMI-culprit lesions measured maxLCBI4mm>400. The multivariate analysis demonstrated a positive correlation between age and maxLCBI4mm in STEMI-culprit lesions (p=0.01), whereas baseline characteristics showed no correlation to maxLCBI4mm in non-culprit segments.



CONCLUSIONS We found the majority of STEMI-culprit lesions to contain maxLCBI4mm>400 and a positive correlation between age and maxLCBI4mm in STEMI-culprit lesions. This finding is in agreement with cholesterol continuously accumulating in coronary plaques during life. The finding supports statin therapy also for the elderly.

CATEGORIES IMAGING: Vulnerable Plaque

KEYWORDS Age, Near-infrared spectroscopy, ST elevation myocardial infarction

TCT-319

Association Between Endothelial Progenitor Cells And Atherosclerotic Plaque Burden In Stable Coronary Artery Disease: An OCT Study 6-Months After Stent Implantation

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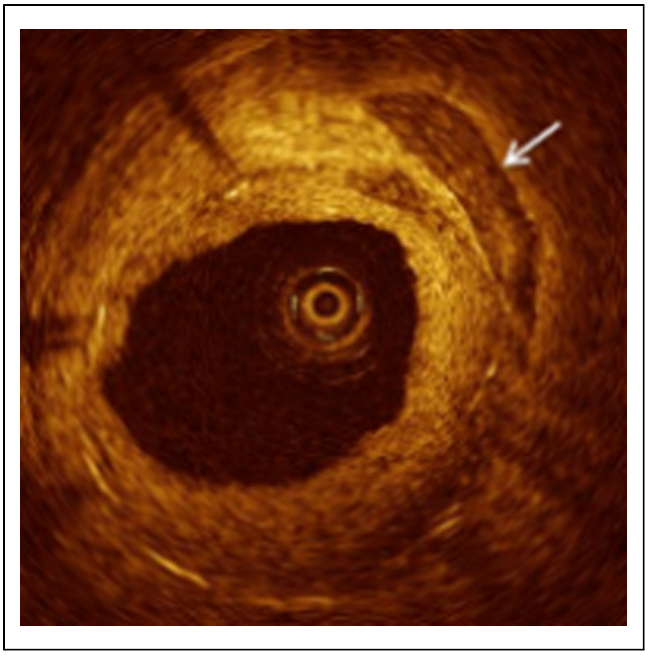
BACKGROUND Endothelial progenitor cells (EPC) are found to be involved in neovascularization and endothelial integrity. They might exert protective properties in coronary atherosclerosis. Recently, an association between in-stent proliferation and EPC counts has been shown. Optical coherence tomography (OCT) is a precise intracoronary imaging modality that also allows assessment of plaque morphology. Here, we aimed to assess the influence of EPCs on intracoronary plaque burden in stable coronary artery disease.

METHODS Forty-four patients (N = 29 males, mean age 69.6 ± 7.7 yrs) scheduled for elective PCI were investigated by OCT during re-angiography after 6 months. Different subpopulations of EPCs were identified by flow cytometry according to their co-expression of different antigens (CD34+, CD133+ and kinase domain receptor, KDR+) before initial PCI. OCT images were analyzed within the stented segment in 0.5 - 1 mm steps. A novel, 3-dimensional algorithm was applied to calculated total plaque burden of the stented vessel segment. Plaque morphology was assessed according to international consensus in OCT imaging (Figure).



RESULTS After 6 months all stents were patent and no significant in-stent restenosis was found with either quantitative coronary angiography or OCT. Overall, a subintimal in-stent plaque volume of 10.87 ± 12.7 mm^3 and a luminal surface plaque area of 16.23 ± 17.0 mm^2 were found in all stents with no significant differences between different drug-eluting stent types. Thin-cap fibroatheroma were not observed. All three EPC subpopulations (mean of EPC levels: CD34+/CD133+: 2.66 ± 2.0 %; CD34+/KDR+: 7.50 ± 5.0 %; CD34+/CD133+/KDR+: 1.12 ± 1.0 %) inversely correlated with the identified in-stent plaque volume and plaque area (Table).

Table. Association between EPCs and Intracoronary Plaques

EPCs	Plaque Volume (mm^3)	p	Plaque Area (mm^2)	p
CD34+/CD133+	r = -0.382	0.011	r = -0.343	0.025
CD34+/KDR+	r = -0.377	0.013	r = -0.312	0.042
CD34+/CD133+/KDR+	r = -0.373	0.014	r = -0.307	0.045

R, correlation coefficient; EPC, endothelial progenitor cells

CONCLUSIONS A high EPC count was associated with less intracoronary plaque burden confirming previous findings of their protective role in coronary atherosclerosis.

CATEGORIES IMAGING: Vulnerable Plaque

KEYWORDS Endothelial progenitor cell, OCT, Percutaneous coronary intervention, elective